



July 21, 2016

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Shrewsbury Zoning Board of Appeals  
c/o Shrewsbury Office of Planning and Economic Development  
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**Subject: The Pointe at Hills Farm, 440 and 556 Hartford Turnpike  
40B Comprehensive Permit  
Preliminary Plan Review**

Dear Zoning Board of Appeals Members:

We received the following document on March 2, 2016:

- Correspondence from Waterman Design Associates, Inc. to Shrewsbury Zoning Board of Appeals dated February 26, 2016 re: Application for Comprehensive Permit – Response to Peer Review Comments, The Pointe at Hills Farm, Shrewsbury, Massachusetts.

We received the following documents on June 29, 2016:

- Plans entitled Site Plans-Comprehensive Permit for The Pointe at Hills Farm in Shrewsbury, Massachusetts (Worcester County) dated November 6, 2015 and last revised June 24, 2016, prepared by Waterman Design Associates, Inc. for Smart Growth Design, LLC. (20 sheets)
- Document entitled Stormwater Management Report for The Pointe at Hills Farms, Shrewsbury, Massachusetts dated June 2016, prepared by Waterman Design Associates, Inc. for Smart Growth Design, LLC.

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' conformance with applicable "Zoning ByLaw of the Town of Shrewsbury, Massachusetts" adopted June 19, 1967 and amended through May 20, 2015; Massachusetts Department of Environmental Protection (MADEP) Stormwater Management Policy and standard engineering practices. As part of our initial review GEI visited the site on January 20, 2016.

This letter is a follow-up to our previous review letter dated January 22, 2016. For clarity, comments from our previous letter are *italicized* and our comments to the design engineer's responses are depicted in **bold**. Previous comment numbering has been maintained. GEI was authorized to proceed with this follow-up review on July 7, 2016.

**Our comments follow:**

**Zoning By-Law**

1. *The Zoning By-Law requires "one and one-half (1-1/2) parking spaces for each dwelling unit therein and sufficient off-street parking for visitors and employees..." The*

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*plans propose parking for the dwelling units but no additional parking for visitors and employees, except for one additional parking space in Phase II. (§VII.D.1.a)*

**Acknowledged.** The plan revisions propose parking greater than 1.5 spaces per dwelling unit with a reasonable amount of “excess” parking. Furthermore, the design engineer’s response letter included parking generation data published by the Institute of Transportation Engineers that further supports the proposed number of parking spaces.

2. *For both project phases, the plans are missing existing structures within 200 feet of the project. The building on the n/f Yellow Freight property is missing from the Phase I plans and the northern building on the n/f South Willow Realty Trust property is missing from Sheet C2.00 of the Phase II plans. (§VII.F.3.f.9)*

**Acknowledged.** Sheet C0.00 was revised to include existing structures within two hundred feet of the project.

3. *On Sheet C2.01 five accessible parking are proposed whereas the Massachusetts Architectural Access Board (MAAAB) requirement for 151 spaces is six accessible spaces. (§VII.F.3.f.11)*

**Acknowledged.** Sheet C2.01 was revised to include six handicap accessible spaces.

4. *Snow storage has not been addressed yet. At a minimum, the applicant should develop a concept for managing snow and show the snow storage areas on the plans. (§VII.F.3.f.14)*

**Acknowledged.** Sheets C1.01 and C2.01 were revised to identify proposed snow storage areas. The snow storage locations are not unreasonable. Also, please be aware that the Stormwater Management System O&M and Long Term Pollution Prevention Plan (included within the Stormwater Management Report) addresses snow management, including the removal of deposited sediments.

5. *The large trees proposed within the detention basin areas should be relocated outside of the basins. Any revisions should also not propose large trees on the earth-fill slopes. (§VII.F.3.f.16)*

**Acknowledged.** Sheets C1.04 and C2.04 were revised to remove large trees from the interior of the detention basins. Trees are proposed near the base of detention basin berms.

#### **Rules Relative to the Submission and Review of a Comprehensive Permit Application**

6. *GEI has no issues relative to compliance with these rules.*  
**No further comment**

#### **Rules and Regulations Governing Special Permits & Site Plan Review**

7. *GEI has no issues relative to compliance with these rules and regulations.*  
**No further comment.**

#### **Subdivision Rules and Regulations**

8. *Not applicable. The driveways within the project will not become public ways.*

**No further comment.**

**Hydrology, Hydraulic Calculations & Stormwater Management Policy**

11. *GEI reviewed the hydrology computations. We found the computations to be in order except as noted in the following two comments.*

**The revised hydrology computations are in order.**

12. *On the Phase I - Existing Hydrology Plan, the subcatchment delineation of E102S and on the Proposed Hydrology Plan, the subcatchment delineation of P103S were not shown in their entirety. The delineation of all subcatchments need to be shown in their entirety.*

**Acknowledged. The Phase I – Existing Hydrology Plan and the Phase I – Proposed Hydrology Plan were revised to show the entire limits of all subcatchments.**

13. *On the Phase 1 – Proposed Hydrology Plan, there are two subcatchments labeled “P103S” and no Subcatchment “P102S”; this appears to be a typographic error but should be corrected. In the post-development hydrology calculations, Subcatchment P102S was modeled as discharging to Infiltration System INF-102. However, it seems that once the subcatchment labeling is revised, it will be found that Subcatchment P102S will not discharge to INF-102. If so, the hydrology calculations will also have to be revised.*

**Acknowledged. The Phase I – Proposed Hydrology Plan and the HydroCAD calculations were revised.**

14. *The preliminary plans do not include all of the drainage pipes modeled in HydroCAD (such as outlets for P301P, P102P, P105P, P108P, P110P, P302P and P304P). It would be helpful if the plans included these pipes.*

**Acknowledged. The plans were revised to include pipe labels, a pipe schedule and detailed information about the stormwater management system outlets.**

15. *GEI reviewed the plans and supporting documents for compliance with MADEP Stormwater Standards in the context of a preliminary plan submittal. Documentation for compliance with certain standards (peak rate attenuation, groundwater recharge and water quality) that pertain to project viability were reviewed whereas other Standards (e.g. construction-phase erosion controls, long-term operation and maintenance plans and illicit discharge statements) apply to the preparation of construction documents. The following four comments pertain to project viability.*

**Additional information (i.e. a draft Stormwater Pollution Prevention Plan to address the project’s construction phase, a long-term operation and maintenance plan and an illicit discharge statement) was included in the revised Stormwater Management Report. Specific concerns or issues are discussed below.**

16. *The following items were not included with this submission and therefore could not be reviewed for compliance: required recharge volume calculations, drawdown time calculations, water quality calculations and sediment forebay sizing calculations. At a minimum, the design engineer should provide pertinent calculations to demonstrate that at a preliminary plan level the stormwater standards could be satisfied if the project*

is approved. We recognize that these computations may be subject to update during the preparation of construction plans.

**Acknowledged.** Additional calculations to demonstrate project viability were presented in the "Stormwater Standards Calculations" section of the Stormwater Management Report. Detailed review will be addressed via peer review of the Notice of Intent filing with the Shrewsbury Conservation Commission.

17. In the Standard 4 discussion on Page 8, the Stormwater Report states that "Water quality measures will be designed to provide a minimum of 80% Total Suspended Solids (TSS) removal and to treat 0.5 inches of runoff prior to discharging to the upland areas of the sites." The value of 0.5 inches is appropriate for Phase II, however a value of 1.0 inch must be used for Phase I if this portion of the project is considered a land use with higher potential pollutant loads (LUHPPLS) as stated in Standard 5 on Page 9 of the Stormwater Report.

**Acknowledged.** The water quality calculations for Phase I were revised to use a value of 1.0 inches of runoff. A value of 0.5 inches was (correctly) used again for the Phase II water quality calculations.

18. In Phase II, Stormwater Basin DB-304 was designed with vertical retaining walls surrounding it. Even though the shorter retaining walls are proposed to be 2.4 feet high, the basin should have slopes for egress from the basin for both persons and for animals. Furthermore, the taller retaining wall on the north side of the basin will prohibit maintenance access to the basin.

**Sheet C-2.02** was revised to include a "critter and access ramp" on the southeast side of the detention basin. The ramp addresses access/egress by persons from the basin to the base of the retaining wall along the parking lot (this wall will be approximately six feet high). The issue of equipment access from the parking lot to the stormwater basin for maintenance of the basin has not been addressed. Finally, the issue of animal egress from the basin should be addressed as part of the Notice of Intent filing with the Shrewsbury Conservation Commission.

19. Sheet C1.02 of the plans proposes a new drain pipe to convey stormwater across Stoney Hill Road. During my site visit, I viewed the accumulation of ice on the Stoney Hill Road sidewalk about ten to twenty feet north of the proposed pipe location. This ice was a result of stormwater runoff from the site. In short, the concept of collecting stormwater before it enters the Stoney Hill Road right-of-way doesn't seem unreasonable. However, further consideration of this proposal is warranted. The applicant should elaborate about the ability to obtain permission from the land owner(s) on the southwest side of Stoney Hill Road to install a new pipe and its discharge. Also, the design engineer should provide adequate information to demonstrate that negative impacts downstream of this new discharge point will not occur. Finally, the location of the new drainage pipe's inlet and the drainage system's detailed design will have to be addressed. This level of detail could be done during the preparation of construction plans if the project goes forward.

The design engineer reported that the applicant has obtained an easement from the downstream property owner to install the drainage improvement. Sheet C1.02 was revised to include additional work at the drainage pipe inlet and outlet. Based upon observations of ice formation and water flow in January 2016 (water flowed from the wetland area in the vicinity of Wetland Flag H),



**consideration should be given to excavating a shallow depression to direct runoff from this area to the depression around Catch Basin 29. Finally, the engineer has not addressed the potential for negative impacts downstream of the proposed discharge point.**

20. *In Phase II, Stormwater Basin DB-302 was designed and modeled such that stormwater will be discharged from the emergency spillway during a 100-year storm event. Use of the emergency spillway should be reserved for emergency conditions; water should be discharged through the basin's primary outlets during storm events up to and including a 100-year storm event. This level of detail could be addressed during the preparation of construction plans if the project goes forward.*

**Acknowledged. The plans and HydroCAD model were revised, stormwater will no longer be discharged from the emergency spillway during any of the modeled storm events.**

21. *The concept of perimeter erosion controls was shown on Sheets C1.02 and C2.02. If the project is approved, the Board may wish to consider a condition of approval that requires the applicant to prepare a more detailed erosion control plan during the preparation of construction plans.*

**This issue will be addressed in greater detail during review of the Notice of Intent filing.**

22. *The parking area at the west side of Phase II is roughly 30,500 sq. ft. or 0.7 acres in size. The plans proposes one single inlet catch basin to drain this parking area. The parking area may need greater catch basin inlet capacity. This is a hydraulic issue and not a hydrologic issue. This level of detail could be evaluated during the preparation of construction plans if the project goes forward.*

**Acknowledged. Sheet C2.02 was revised to include a double-grate catch basin in place of the single-grate catch basin. Based upon the Rational Method hydraulic calculations, a double-grate inlet is satisfactory.**

### **General Engineering Comments**

23. *On Sheet C2.02 there is an 8% grade between the proposed 500 contour and the existing 498 contour at the Phase II exit to Stoney Hill Road. An 8% grade at the intersection approach is too steep.*

**Acknowledged. The grading on Sheet C2.02 was revised, there is now a 4% slope at the exit to Stoney Hill Road.**

24. *The proposed 498 contour at the southeast radius of the Phase II project exit to Stoney Hill Road needs to tie into the existing 498 contour at the edge of the Stoney Hill Road pavement. As currently drawn, the location of the proposed 498 contour at the curb line represents a curb instead of a smooth transition from the driveway to Stoney Hill Road.*

**The proposed 498 contour was eliminated. During the preparation of construction plans, the engineer should add a proposed 498 contour that ties into the existing 498 contour at the curb line.**

25. *We defer to the Town of Shrewsbury whether fences should be provided around the stormwater facilities to deter access to these facilities. If fences are to be required,*

*they should either be shown on the preliminary plans or addressed as a condition in the Comprehensive Permit.*

**No further comment.**

26. *We understand that the Shrewsbury Water Department and its consultant will review the proposed water utilities and will address the availability of water. Likewise, we understand that the Shrewsbury Sewer Water Department and its consultant will review the proposed sewer utilities and will address the availability of sewer capacity.*  
**No further comment.**

27. *The plans propose fire hydrants located throughout the site. If not already done, the Applicant should solicit input from the Fire Department and Water Department relative to the proposed number and locations of the fire hydrants.*  
**No further comment. GEI is not aware if the fire hydrant locations on these revised plans have been reviewed by the Fire and Water Departments.**

28. *In the Phase II portion of the project, the forebay for stormwater basin DB-302 (located at the eastern corner of the site) is within the municipal sewer easement and will inhibit the use of the easement for operating the sewer system. Also, water discharged to the forebay (above the sewer main) could infiltrate to the sewer pipe bedding stone and potentially infiltrate into the sewer system if there are any leaking joints in the pipe. Stormwater impoundments should be located away from the sewer system.*  
**Acknowledged. The existing sewer main and easement are proposed to be relocated outside of the forebay for Stormwater Basin DB-302.**

29. *On Sheet C1.03, the water and sewer mains located southwest of Building 5 are only about six feet apart; a minimum separation of ten feet is required.*  
**Acknowledged. The water main layout on Sheet C1.03 was revised.**

30. *Although the proposed grading and the utilities are shown on separate plans, it appears that the 1:1 riprap slope in Phase II will encroach over the sewer manhole located near proposed Stormwater Basin DB-302. The 1:1 slope should not impede access to the manholes or use of the easement; a 1:1 slope around the manhole cover will make it difficult to stage personnel and equipment during sewer maintenance operations. Similarly, the 1:1 slope is proposed length-wise along the easement for approximately 100 feet and will occupy about half of the easement's width. We defer to the Town of Shrewsbury if this encroachment into the sewer easement is acceptable.*  
**Acknowledged. The existing sewer main, manhole and easement are proposed to be relocated outside of the 1:1 slope area and away from Stormwater Basin DB-302.**

31. *The retaining wall at the Phase I stormwater basin will have to be designed to withstand periodic inundation. Retaining wall structural designs are typically addressed prior to the start of construction.*  
**No further comment.**

32. *In Phase II, a transformer pad is proposed adjacent Stoney Hill near Building 3. This area has a steep grade. The plans should be revised to show proposed grading and tree clearing limits to support the necessary grade changes or the transformer pad should be relocated.*

**Acknowledged. The location of the transformer pad was relocated to a more level area.**

**General Comments**

33. *For both phases of the project, the "Zoning Summary Tables" include the requirements for the Route 20 Overlay District. This information should also be included within the permit application section labeled; "Section 9 List of Exceptions wavier requests."*  
**The "Zoning Summary Tables" on Sheets C1.01 and C2.02 were revised to include the Route 20 Overlay District. GEI did not receive an updated List of Exceptions.**

34. *The Phase II plans are missing the lines for the overhead wires located along the Hartford Turnpike frontage. The utility poles were shown.*

**Acknowledged. Overhead wires were added to the Phase II plans.**

**Additional Comments**

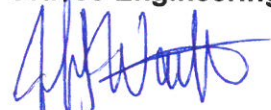
35. **A construction detail for subsurface infiltration system INF-107 needs to be provided on Sheet C3.03.**

36. **The modeling of INF-202 does not correlate with the construction detail of INF-202 on Sheet C3.03 (specifically the primary outlet elevation and the storage volume at elevation 439.75). The engineer must revise either the HydroCAD calculations or the construction detail of INF-202.**

37. **The slope of the "tot lot" is proposed to be 3H:1V between elevations 514 and 516, and 2H:1V between elevations 516 and 518. These slopes cover about 1/3 of the "tot lot" area. These slopes are too steep for playground equipment or a play area and should be revised.**

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,  
**Graves Engineering, Inc.**



Jeffrey M. Walsh, P.E.  
Vice President